

**(57) Abstract**

The invention relates to a process for the bleaching of chemical pulp and the use of a bleaching solution. According to the invention the pulp is treated in a plurality of different steps by using at least in one step a bleaching solution which contains a peracid, and the essential idea of the invention is that the peracid is used in an post-bleaching which is the last step of the bleaching process, the post-bleaching being carried out in the presence of one or more earth-alkali metal compounds. By using a peracid the pulp is brought to its final brightness, and the purpose of the earth-alkali metal added is to combat the lowering of the viscosity of the pulp. According to the invention the post-bleaching can be carried out after the bleach plant steps in a pulp flow pipe, a storage tower or in the paper machine at a paper mill.